

October 31, 2006

**Before the
Federal Communications Commission
Washington, DC 20554**

In the Matter of

Investigation of the Spectrum
Requirements for Advanced Medical
Technologies

ET Docket No. 06-135

Amendment of Parts 2 and 95 of the
Commission's Rules to Establish the
Medical Device Radio Communications
Service
at 401-402 and 405-406 MHz

RM-11271

COMMENTS OF ZARLINK SEMICONDUCTOR INC.

As one of the first developers of a transceiver chip (ZL70100) that complies with the frequency monitoring and frequency agility requirements of the "core" 402-405 MHz Medical Implant Communications ("MICS") band, Zarlink Semiconductor Inc.¹ supports the maintenance of the existing rules in the majority of that band given the extensive research and development that Zarlink and other companies have carried out in reliance on those rules.

To achieve economies of scale, Zarlink develops and markets its products internationally, and therefore strongly supports common operations in all regions.

¹ Zarlink has delivered semiconductor solutions that drive the capabilities of voice, enterprise, broadband and wireless communications for over 30 years. Zarlink employs about 750 people worldwide, and its customers include Cisco, Samsung, Nokia, Fujitsu, Siemens, Huawei, LG, Marconi, Alcatel, NEC, Infineon, Panasonic, Medtronic, St. Jude Medical, Boston Scientific, Given Imaging and Cochlear. Information on the company and its products is available at <http://www.zarlink.com/>.

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Zarlink notes that the similar operations proposed in Europe (ETSI) would also permit a low-power low-duty-cycle (“LPLDC”) channel within the core MICS band. While not ideal, Zarlink supports the type of operation set forth in ETSI EN-301-839 Parts 1 & 2, now in the resolution of Public Enquiry phase: specifically, single channel operation, implant initiation only, 0.01% maximum duty cycle, 100 nW maximum ERP, and maximum of 10 transmissions per hour.

The FCC’s proposals to allow devices employing LPLDC transmissions in the 401-402 MHz and 405-406 MHz bands directly adjacent to the existing MICS allocation will enable a broad range of highly useful short-range medical devices and associated applications.

Company Background. Zarlink, a worldwide leader in the development of ultra low-power medical communications solutions, supplies RF integrated circuit (“IC”) chips and modules for application in medical devices, including cardiac rhythm management, neuro-stimulators and hearing-aids. Zarlink technology, for example, is used to support the world’s only swallowable camera capsule, the “PillCam™,” which is used to diagnose gastrointestinal disorders.²

Zarlink has developed novel in-body antenna designs and ultra low-power communications systems for Body Area Networks.³ Body Area Networks use ultra low-power RF technology to wirelessly connect implanted medical devices and on-body

² See Given Imaging to Launch Advanced PillCam™ SB Video Capsule, News Release, Oct. 6, 2005 at <http://news.zarlink.com/archive/2005/Oct/06/Oct6-GivensPillCam-English.htm.en>.

³ This work has been conducted as part of the Healthy Aims project – a European initiative developing a range of new medical implant devices to help the aged and those with disabilities. See <http://www.healthyaids.org/> for more information.

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sensors with diagnostic and therapeutic tools to support and monitor patient health in real-time. The company is currently working with several medical device manufacturers on other innovative applications that use ultra low-power RF systems to improve patient diagnoses and therapy. There is no question that the development of in-body and on-body communications systems would be further invigorated by the FCC's allocation of the MedRadio service, just as the FCC's approval of the MICS band in 1999 spurred extensive research and development into implantable medical device communications systems and applications.

The Proposed MedRadio Service. As Zarlink noted previously, it would welcome the opportunity to design a transceiver chip for operation in the 401-402 MHz and 405-406 MHz bands. See Zarlink Comments on Petition for Rulemaking, RM No. 11271, Sept. 23, 2005. Because these bands are directly adjacent to MICS and the FCC's proposal for the bands are based, in part, on the MICS smart radio requirements, Zarlink would be able to take advantage of technology advances and lessons learned from its previous MICS developments.

The proposed operations would support very useful wireless medical applications that enhance the level and lower the cost of medical care. The proposed operations would improve medical diagnoses and the treatment of critically ill patients and help to keep healthy individuals out of nursing homes and hospitals. Physicians could use the service to remotely adjust internal and external medical devices, such as insulin pumps, with improved efficiency and accuracy. In addition, patient status information, such as vital signs, can be wirelessly communicated to external monitoring equipment and medical record databases.

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Zarlink is eager to develop cost-effective products that will use ultra low-power medical communications to provide improved healthcare services at lower cost. Therefore Zarlink strongly encourages the FCC to formally authorize operations which maintain the existing rules in the majority of the "core" MICS band, and further, which will support a common international standard for medical device communications.

Respectfully submitted,

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